

FAN SELECTION SOFTWARE

The fan selection software is the result of our dedicated efforts of many years. The program basically works upon a database maintained by the fan manufacturing company. This database contains all the technical details of the fan models like model name, fan diameter, hub diameter, number of blades, fan speed, materials of construction, fan weight, natural frequencies of blades, etc. along with curve information. Curve information includes curve data for different tip angles i.e. flow, pressure, power, efficiency data for all tip angles. Using fan laws the program can convert design curves to different fan speeds and / or different air densities.

Enter Technical Information

Application

- Cooling Tower
- Heat Exchanger

Fan Diameter

- Selected by Program
- Selected by User

in

Optional Parameters

Air Density: lb/ft³

Air Temperature: deg f

Elevation: ft

Tip Speed Limit: ft/min

Venturi Height: in

Blade pass Freq. Margin: %

No. of Support Beams:

Sound Pressure Level:

Type

- Forced Draft
- Induced Draft

Fan RPM

- Selected by Program
- Given by User

Optimize for

- Cost
- Power
- Sound

Required parameters

AIR FLOW: cfm

STATIC PRESSURE: in Wg

INLET BELL SHAPE:

Cancel

OK

For selecting a fan the user is asked to provide information like air flow rate, static pressure and inlet bell shape. Optionally the user can also provide air density / temperature and altitude, allowable tip speed, number of support beams, venturi height, etc., otherwise the program uses default values of these parameters. The user also needs to specify fan diameter and fan speed, if they are available with the user, else the program will decide the fan diameter and fan speed. A screen like the one shown below is displayed to accept data from user. Before this the user is also asked to select system of units, Metric or I-P. The following screen is for I-P units.

Depending upon the data supplied by the user, the fan database is searched for fans performing required duty. The best suited fan model depending on the criteria for optimization is shown to the user. The performance curves, specification sheet and speed-torque curve of the selected fan can be viewed and printed. Appropriate error messages are shown when the required duty is not met. A specification sheet like the one shown below is displayed by the program after fan selection. The following screen is for Metric units.

User	: Turbo Computer Professionals P. Ltd.	Prepared by						
Customer	: Customer_1	Inquiry no. :	2002/01/05					
Job no.	: 2002/01	Item no. :	125					
Run Date :	09/05/02							
Selected Fan Specifications As Follows:								
Parag Fan Model :	PARAG-MAP-5486-8HV-P18							
Fan Diameter :	5486	mm						
Hub Diameter :	762	mm						
Number of Blades :	8							
Fan Speed :	220.0	rpm						
Pitch Angle :	14.0	deg.						
Air Flow :	200.0	m3/sec						
Static Pressure :	200.0	Pascal						
Velocity Pressure :	50.4	Pascal						
Velocity Pressure Recovery :	0.0	Pascal						
Inlet Loss :	0.0	Pascal						
Total Pressure :	250.4	Pascal						
Air Density At Exit :	1.200	kg/m3						
Fan Shaft Power :	62.7	kW						
Allowable Power / Blade :	10.4	kW						
Total Fan Efficiency :	80.0	%						
Static Fan Efficiency :	63.9	%						
Fan Assembly Weight :	295.0	kg						
Fan GD**2 Value :	1231.0	kg-M2						
Total Thrust :	8813.2	N						
Blade Construction & Material :	Hollow FRP with leading edge & UV protection							
Hub Centre Bush Material :	CI-20							
Hub Support Plates Material :	MSHDG							
Blade Holding Block Material :	AL.- LM6							
Fastening Hardware Material :	S.S.							
Seal Disc	F.R.P.							
Blade Natural Frequency :	6.8	Hz						
Blade Pass Frequency :	29.3	Hz						
Beam Pass Frequency :	11.0	Hz						
Octave Bands (Hz)	63	125	250	500	1k	2k	4k	8k
Lw	110.1	109.1	106.1	100.6	100.1	095.1	092.6	085.1
Lp (Inlet)	098.6	097.6	094.6	089.1	088.6	083.6	081.1	073.6
Lp (Side)	091.6	097.6	094.6	089.1	088.6	083.6	081.1	073.6
LwA	105.1	dbA						
LpA (Inlet)	093.6	dbA						
LpA (Side)	086.6	dbA						

The parameters in specification sheet can be customized to match fan manufacturing company's requirements.

The Master data creation software gives the complete environment for feeding the fan data into the database. The selection is done from the master database.

Fan Model Data Editing

CURVE-6 CURVE 7 CURVE 8 CURVE 9 CURVE 10

GENERAL CURVE-1 CURVE-2 CURVE-3 CURVE-4 CURVE-5

S.No. 303

Model Name TURBO\48\04

Fan Diameter 48 in.

Hub Diameter 16 in. Seal Disk

No. of Blades 4

R.P.M. 576

Fan Weight 0 kg.

Gd² 0 kg-m²

Cost Index 0

Material of

Blade F.R.P. WITH L

Hub MSHDG

Blade Holding Blocks CI-20

Fasteners S.S.

Centre Bush CI-20

Application

Cooling Tower Industrial Ventilation

Heat Exchanger Mine Ventilation

Humidifier

Frequency of Blades

First Mode 0

Second Mode 0

OK Cancel Apply

The software is developed in Visual C++ programming language. It is supported on Windows 95 and higher operating systems. The code of software is very compact, so link can be given on website to download software.